

PATENT APPLN. NO. 10/591,070  
SUBMISSION UNDER 37 C.F.R. § 1.114

PATENT

REMARKS

Claims 1, 9 and 18 have been amended to limit the authentication apparatus, authentication method and computer readable memory medium storing an authentication program of the present invention to respective ones in which authentication data is based on both a pulse voltage and a pulse interval. Support for these amendments is found in the specification in the description on page 10, line 18, to page 11, line 1, and, in particular, page 10, lines 24-26. Claim 18 has also been amended for consistency with claims 1 and 9 to recite that the random pulse generator detects  $\alpha$  particles, a beta ray or a gamma ray released by the collapse of an atomic nucleus and generates the random pulses.

By basing the authentication data on both the pulse voltage and the pulse interval, the authentication data can be created at a higher bit rate than is otherwise possible. This is especially an advantage in ultra-secure authentication applications involving RPGs based on radioactive decay where an increase of the pulse rate is not available or desirable for reasons such as radiation protection.

The claims are believed to be patentable under 35 U.S.C. § 102 and 35 U.S.C. § 103(a) over the prior art references cited in the rejections in the Final Office Action dated March 15, 2010.

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None of Shi (EP 0957220), Shilton (WO 99/41834) and Barker (US 5,076,971) discloses or suggests, and no combination of these references suggests, the use of both pulse voltage and pulse interval as recited in the amended claims and such advantages of such use.

Removal of the rejections and an allowance of the claims are believed to be in order and are respectfully solicited.

The foregoing is believed to be a complete and proper response to the Final Office Action dated March 15, 2010.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension and any additional required fees may be charged to Deposit Account No. 111833.

Respectfully submitted,  
KUBOVCIK & KUBOVCIK



Ronald J. Kubovcik  
Reg. No. 25,401

Atty. Case No. OKB-017  
Crystal Gateway 3  
Suite 1105  
1215 South Clark Street  
Arlington, VA 22202  
Tel: (703) 412-9494  
Fax: (703) 412-9345  
RJK/ff/esc